DOCUMENTS EXPEDITING PROJECT

[COMMITTEE PRINT NO. 7]

A HALF CENTURY OF PROGRESS ON THE KLAMATH FEDERAL RECLAMATION PROJECT

REPORT

BY

BUREAU OF RECLAMATION
UNITED STATES DEPARTMENT OF THE INTERIOR

FOR THE USE OF THE

COMMITTEE ON INTERIOR AND INSULAR AFFAIRS
HOUSE OF REPRESENTATIVES

MAY 1957

UNITED STATES
GOVERNMENT PRINTING OFFICE
92054 WASHINGTON : 1957

COMMITTEE ON INTERIOR AND INSULAR AFFAIRS

CLAIR ENGLE, California, *Chairman*

WAYNE N. ASPINALL, Colorado
LEO W. O'BRIEN, New York
WALTER ROGERS, Texas
MRS. GRACIE PFOST, Idaho
JAMES A. HALEY, Florida
GEORGE A. SHUFORD, North Carolina
ADAM CLAYTON POWELL, Jr., New York
ED EDMONDSON, Oklahoma
LEE METCALF, Montana
GEORGE H. CHRISTOPHER, Missouri
B. F. SISK, California
STEWART L. UDALL, Arizona
CHARLES C. DIGGS, Jr., Michigan
J. T. RUTHERFORD, Texas
WALTER S. BARING, Nevada
AL ULLMAN, Oregon

A. L. MILLER, Nebraska
JOHN P. SAYLOR, Pennsylvania
J. ERNEST WHARTON, New York
E. Y. BERRY, South Dakota
WILLIAM A. DAWSON, Utah
JACK WESTLAND, Washington
JOHN R. PILLION, New York
CRAIG HOSMER, California
JOHN J. RHODES, Arizona
J. EDGAR CHENOWETH, Colorado
JAMES B. UTT, California
KEITH THOMSON, Wyoming
PHIL WEAVER, Nebraska
HAROLD R. COLLIER, Illinois

E. L. (BOB) BARTLETT (Delegate), Alaska
JOHN A. BURNS (Delegate), Hawaii
A. FERNÓS-ISERN (Resident Commissioner), Puerto Rico

SUBCOMMITTEE ON IRRIGATION AND RECLAMATION

WAYNE N. ASPINALL, Colorado, *Chairman*

CLAIR ENGLE, California (ex officio)
LEO W. O'BRIEN, New York
WALTER ROGERS, Texas
MRS. GRACIE PFOST, Idaho
JAMES A. HALEY, Florida
GEORGE A. SHUFORD, North Carolina
ADAM CLAYTON POWELL, Jr., New York
ED EDMONDSON, Oklahoma
LEE METCALF, Montana
GEORGE H. CHRISTOPHER, Missouri
B. F. SISK, California
STEWART L. UDALL, Arizona
J. T. RUTHERFORD, Texas
WALTER S. BARING, Nevada
AL ULLMAN, Oregon

A. L. MILLER, Nebraska
JOHN P. SAYLOR, Pennsylvania
J. ERNEST WHARTON, New York
E. Y. BERRY, South Dakota
WILLIAM A. DAWSON, Utah
JACK WESTLAND, Washington
JOHN R. PILLION, New York
CRAIG HOSMER, California
JOHN J. RHODES, Arizona
J. EDGAR CHENOWETH, Colorado
JAMES B. UTT, California
KEITH THOMSON, Wyoming
PHIL WEAVER, Nebraska

JOHN A. BURNS (Delegate), Hawaii

SIDNEY L. MCFARLAND, *Engineering Consultant*

STATEMENT OF THE CHAIRMAN

MAY 16, 1957.

To the Members of the House Interior and Insular Affairs Committee:

A significant milestone has been reached by another of our earliest reclamation projects. The Klamath reclamation project in California and Oregon has completed 50 years of successful operation. The project was authorized in 1905 and the first delivery of irrigation water to project lands was accomplished on May 16, 1907.

This project is another excellent example of the tremendous contribution reclamation projects make to the economy of the areas in which they are located, as well as to the economy of the Nation. The attached report by the Bureau of Reclamation is another in a series of studies made at my request to determine to what extent reclamation is creating new wealth and contributing to the economic well-being of our Nation.

Through the half century since the Klamath project was completed, the Federal Government has invested about $14.7 million in construction of the project. During that same period the project has produced crops having a gross value of more than $350 million. During the last 10 years alone, project lands have produced 67 million bushels of potatoes valued at $80 million, and 42 million bushels of barley valued at $62 million. Federal tax collections alone since 1940 have reached a cumulative total of about $95 million, or more than 6 times the project's cost.

Two hundred thousand acres of fertile land have been reclaimed from swamp and arid prairie. More than 1,600 farm families and scores of merchants and tradesmen derive an excellent livelihood from this reclamation project. About 44,000 acres of the 200,000 acres reclaimed were originally in the public domain. These public lands have been dedicated to the most worthy purpose of assisting our war veterans. I can think of no finer program. Since 1922 settlement opportunities have been provided to more than 600 veterans of World Wars I and II.

Although the accomplishments in the Klamath project area in the past half century have been great, there is still room for expansion, and even greater accomplishments are in store for this area in the future if full development of the water and land resource potential is effectively achieved.

I believe that you will find this a very interesting study and another example showing that expenditures for our reclamation program constitute one of the Nation's wisest investments.

CLAIR ENGLE,
Chairman, House Interior and Insular Affairs Committee.

LETTER OF TRANSMITTAL

DEPARTMENT OF THE INTERIOR,
BUREAU OF RECLAMATION,
Washington, D. C. May 14, 1957.

Hon. CLAIR ENGLE,
Chairman, Committee on Interior and Insular Affairs,
Washington, D. C.

DEAR MR. ENGLE: Responsive to your request of April 29, 1957, for a report on the growth and status of the Klamath Federal reclamation project in its 50 years of operation, we are pleased to transmit two copies of a report, A Half Century of Progress on the Klamath Federal Reclamation Project. The data contained therein were drawn from other reports and records of the Bureau and from published reports and records of other agencies. The report shows, among other facts, that—

1. Two hundred thousand acres of fertile land have been reclaimed from swamp and arid prairie. About 44,000 acres of the total were in the public domain and have been opened to homestead entry.
2. Five hundred thousand acre-feet of precious water are conserved annually which formerly were entirely wasted.
3. In all, more than 1,600 farm families and scores of merchants and tradesmen derive an excellent livelihood from this reclamation project.
4. The project comprises 64 percent of the irrigated cropland in Modoc and Siskiyou Counties, Calif., and Klamath County, Oreg., but produces 89 percent of the crop values.
5. A cumulative value of $338,067,000 of crops have been grown from 1907 through 1955. In the last 5 years, gross crop value averaged $116 per acre.
6. The project has established itself as a leading producer of alsike clover, malting barley, and high-quality potatoes, as well as many other common and specialty crops.
7. Sufficient feed grain and forage are grown on the project in an average year to produce 43 million pounds of grain-fed beef for our dining tables. The feed and forage production of the project contributes significantly to the effective utilization of adjacent grazing land.
8. The project is a highly important segment of the Klamath area's economic base. It is conservatively estimated to provide 26 percent of all employment and income in the surrounding 3-county area.
9. Federal tax collections alone since 1940 have reached a cumulative total of $95 million. This is more than six times the project's cost.

10. To date, $11,200,000 of the original cost of $14,700,000 has been repaid. Repayments are current.

11. As great a growth lies in store for the Klamath area as it has experienced in the past half century if full development of the water and land resource potential is effectively achieved.

Your comments and suggestions regarding the report will be appreciated.

Sincerely yours,

W. A. DEXHEIMER, *Commissioner.*

A HALF CENTURY OF PROGRESS
ON THE
KLAMATH FEDERAL RECLAMATION PROJECT

REPORT BY BUREAU OF RECLAMATION
UNITED STATES DEPARTMENT OF THE INTERIOR

FOR THE USE OF THE

COMMITTEE ON INTERIOR AND INSULAR AFFAIRS
HOUSE OF REPRESENTATIVES
MAY 1957

UNITED STATES DEPARTMENT OF THE INTERIOR
Fred A. Seaton, Secretary

BUREAU OF RECLAMATION
W. A. Dexheimer, Commissioner

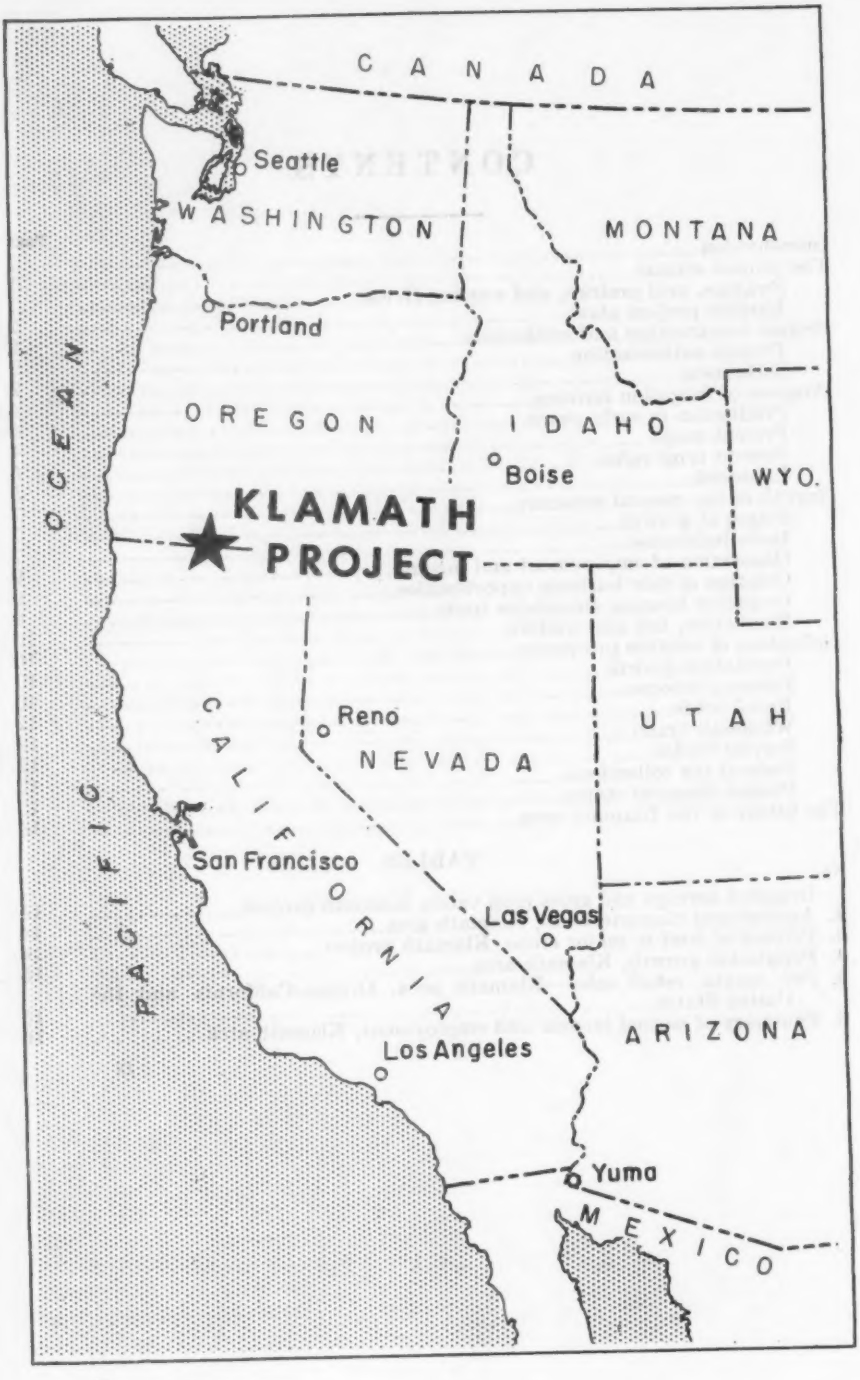
CONTENTS

	Page
Introduction	1
The project setting	1
Swamps, arid prairies, and wasting rivers	1
Earliest project plans	2
Project construction and settlement	2
Project authorization	2
Settlement	2
Progress of irrigation farming	4
Production in early years	4
Present crops	4
Present crop value	5
Livestock	5
Growth of the general economy	7
Stages of growth	7
Basic industries	7
Generation of employment and income	9
Creation of new business opportunities	9
Irrigation farming stimulates trade	9
Recreation, fish and wildlife	10
Indicators of relative prosperity	10
Population growth	10
Personal income	10
Retail trade	12
Wholesale trade	12
Service trades	12
Federal tax collections	12
Project financial status	13
The future of the Klamath area	13

TABLES

No.		
1.	Irrigated acreage and gross crop value, Klamath project	14
2.	Agricultural characteristics, Klamath area	14
3.	Percent of land in major crops, Klamath project	14
4.	Population growth, Klamath area	15
5.	Per capita retail sales—Klamath area, Oregon-California and the United States	15
6.	Summary of earned income and employment, Klamath area	16

92054—57——2


C A N A D A
Seattle
WASHINGTON
MONTANA
Portland
OREGON
I D A H O
Boise
WYO.
KLAMATH
PROJECT
OCEAN
PACIFIC
Reno
NEVADA
U T A H
CALIFORNIA
San Francisco
Las Vegas
ARIZONA
Los Angeles
Yuma
M E X I C O

A HALF CENTURY OF PROGRESS ON THE KLAMATH FEDERAL RECLAMATION PROJECT

Introduction

The present broad expanse of lush, green fields fails to suggest the wild and desolate nature of the country only 50 years ago. In this brief span of time the vagrant waters of the rivers have been effectively captured and controlled. Swamps and prairie lands have been reclaimed and converted to productive agricultural use. Slowly, as the frontiers were pushed back, farming and permanent commerce replaced the passing trapper, the hapless prospector, and the transient trader.

A half century of progressive irrigation development has brought a balanced and prosperous economy to the Klamath area. Eighty-three thousand people now make their homes in this 3-county area, consisting of Siskiyou and Modoc Counties in northern California and Klamath County in southern Oregon. More than 1,600 farmers and their families and scores of independent merchants and tradesmen owe their precious business opportunities to this 200,000-acre reclamation project.

The Project Setting

Engineer John Whistler was enthusiastic over the possibilities when he first visited Klamath Falls in 1903 on a reconnaissance survey of potential irrigation projects for the newly formed Federal Reclamation Service. He found a little frontier town of 450 persons, isolated, with few roads and no railroads, supported by a few scattered ranches and a struggling lumbering industry. But he saw the promise of a vast irrigation project in the place of the sunbaked prairie and worthless swamps.

Swamps, arid prairies and wasting rivers

Visualize the central plain of two closely adjacent river basins, pocketed between spurs of the steep, wooded Cascade Range—windswept, sage-strewn, and with vast expanses of seasonally expanding and receding shallow lakes. Aptly named Lost River coursed some 70 wandering miles from its source at Clear Lake only to dead end in shallow Tule Lake. No drainage outlet existed for the Lost River Basin's 1,620 square miles of mountain and valley area, and each year evaporation and seepage thieved away the entire year's runoff. Closely adjacent to the west the flooding Klamath River seasonally overflowed into Lower Klamath Lake, leaving thousands of acres of potential farmland soaking under water. Altogether 125,000 acres of good land lay wasting beneath the surfaces of Tule and Lower Klamath Lakes. An estimated 500,000 acre-feet of precious water was lost to evaporation and seepage each year, while thousands of acres of fertile benchlands lay ready to be reclaimed by irrigation. Few farmers dared to challenge the hazards of farming here where spring floods

menaced the valley lands and less than 4 inches of rain fell to sustain the crops through the summer months. Irrigation, first begun in 1882 by the Van Brimmer brothers, had grown falteringly until it covered no more than 10,000 acres in 1903.

EARLIEST PROJECT PLANS

Earliest reclamation plans embodied a scheme of diverting Lost River into the nearby Klamath drainage, shunting its excess waters away from Tule Lake. This same channel could be used to bring Klamath River waters over into the Lost River Basin for irrigation purposes. Clear Lake could be enlarged by a dam to regulate Lost River flows for irrigation and Tule Lake bed, once it was drained and protected from annual flooding, could become highly productive farmland. A dam was proposed to raise the height of the Upper Klamath Lake and to control its supply to the Klamath River. This would regulate flows for irrigation, prevent recurrent flooding of potential farming lands and store surplus water for irrigation use. Lower Klamath Lake, broad and shallow, could be drained and reclaimed once the surging overflow of the Klamath River could be controlled.

Farming would be no paradise at the start—hardy settlers would be needed who could plow a straight furrow and herd irrigation water with a long-handled shovel. Summers here were hot, dry, and short; the winters long and cold. The wind blew without respect for the seasons. Communities that would grow and last could not be built in this country without irrigation.

Project Construction and Settlement

PROJECT AUTHORIZATION

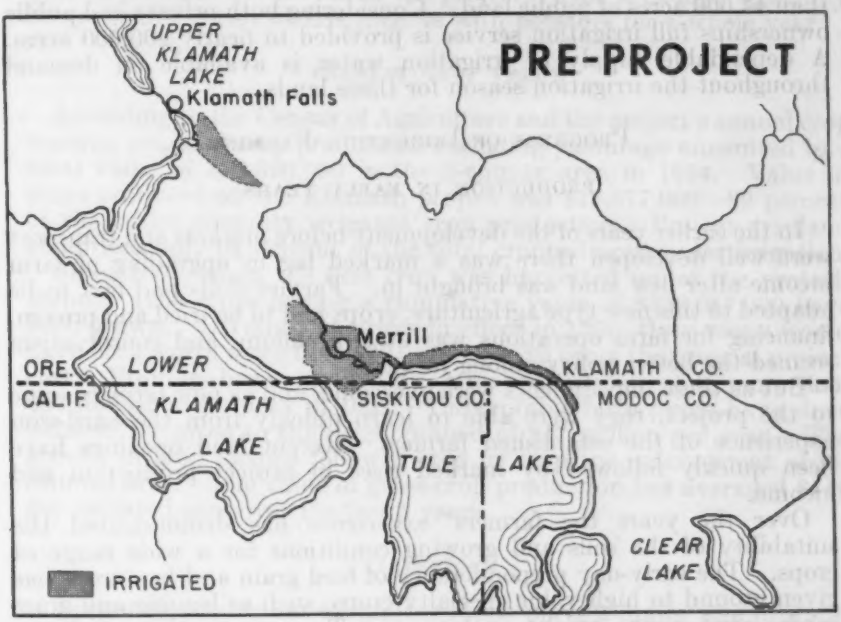
The ambitious scheme of development had local support but its cost and complexity were clearly beyond the limited means of local interests. Acting under the newly granted authorities provided in the Reclamation Act of 1902, Interior Secretary Hitchcock approved the plan of development for the Klamath project in 1905 and set aside funds for the initiation of construction.

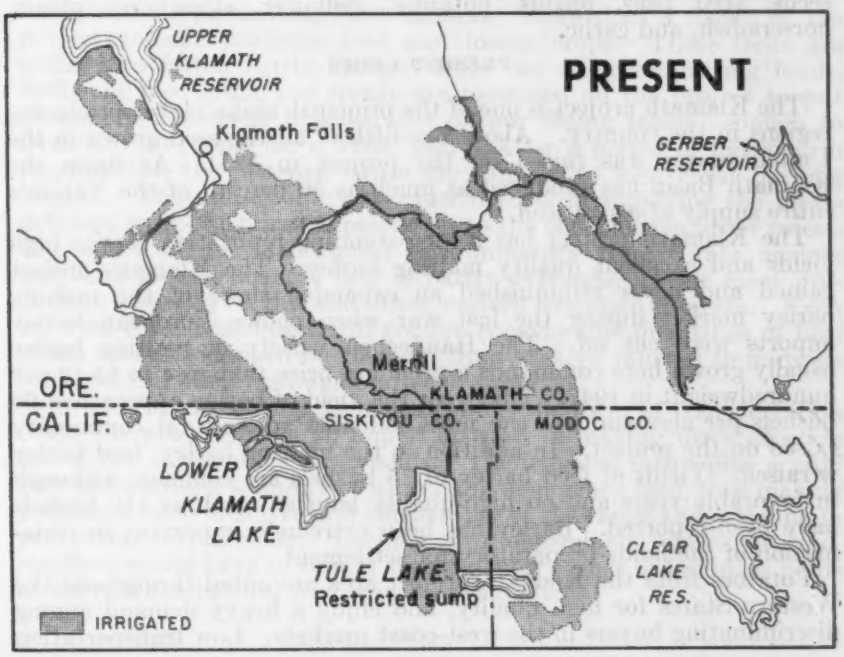
At that time the project was singular in its problems and complexities. It faced many impediments to progress. The watersheds, arable lands, and extensive marsh areas lay in 3 counties and 2 States. However, both California and Oregon recognized the real potential in the development and by their respective legislative acts in 1905 ceded the beds of these lakes to the United States for reclamation use. Requisite to an operable project plan, early water rights were acquired from the States and cooperating water users and the way was cleared for transbasin water diversions.

SETTLEMENT

Construction of the project began in 1906 and the first water was delivered on May 16, 1907. Public Notice No. 1, announcing the opening of public lands for reclamation homestead entry, was issued by the Secretary of the Interior on November 18, 1908. Under this notice 31,153 acres of Klamath project land were to receive irrigation

KLAMATH PROJECT
Comparison of Pre-Project and Present Irrigated Areas





service. The first homestead lands were irrigated during 1909. Nearly 24,000 acres were under irrigation on the project by 1912. Subsequent openings were held in 1917, 1922, and later years, principally upon areas of land reclaimed from Tule Lake. Since 1922 there have been 10 separate homestead openings on the Tule Lake division, involving 613 irrigated farm units. These involved more than 44,000 acres of public land. Considering both private and public ownerships full irrigation service is provided to nearly 200,000 acres. A dependable supply of irrigation water is available on demand throughout the irrigation season for these lands.

Progress of Irrigation Farming

PRODUCTION IN EARLY YEARS

In the earlier years of the development before markets and transport were well developed there was a marked lag in upgrading of farm income after new land was brought in. Farmer skills had first to be adapted to this new type agriculture, crops had to be tried and proven, financing for farm operations was at a premium, and conservatism seemed the better policy among farmers.

But as these impediments were overcome, and as new farmers came to the project, they were able to learn quickly from the hard-won experience of the established farmers. Recent land openings have been quickly followed by marked rises in project production and income.

Over the years the farmers' experience has demonstrated the suitability of the soils and growing conditions for a wide range of crops. The early-day preponderance of feed grain and hay crops has given ground to high value specialty crops, such as legume and grass seeds, seed peas, onions, potatoes, safflower, strawberry plants, horseradish, and garlic.

PRESENT CROPS

The Klamath project is one of the principal alsike clover-producing regions in the country. About one-fifth of all the seed grown in the United States was raised on the project in 1951. At times the Klamath Basin has produced as much as 50 percent of the Nation's entire supply of alsike seed.

The Klamath project has a long-standing reputation for its high yields and excellent quality malting barley. The Klamath project gained and never relinquished an expanded share of the malting barley market during the last war when choice European barley imports were cut off. The Hannechen variety of malting barley usually grown here commands a premium price that rose to $5.12 per hundredweight in 1947. That year the yield of barley approached 60 bushels per acre and was the most valuable agricultural commodity raised on the project. In addition to the malting barley, feed barley is raised. Yields of feed barley of 75 bushels are common, although in favorable years and on high-quality land as much as 110 bushels have been reported. Barley has been extremely important in reclamation of the lands preparatory for settlement.

Potatoes from the Klamath project area are noted throughout the Western States for high quality, and enjoy a heavy demand among discriminating buyers in the west-coast markets. Low transportation

costs favor Klamath potatoes in many of the western cities and result in savings to consumers. The Klamath project soils contain large quantities of organic matter and are ideal for potato culture. Average yields are high, with the project average frequently exceeding 450 bushels per acre. In the average year 4 million bushels of high-quality potatoes are grown on the project. This is enough to supply everyone in the city of Los Angeles with potatoes for a whole year.

PRESENT CROP VALUE

According to the Census of Agriculture and the project's annual crop reports, irrigated crop production excluding pasturage amounted to a total value of $18,890,000 in the 3-county area in 1954. Value of crops produced on the Klamath project was $16,877,000—89 percent of the entire 3-county irrigated crop production. Project cropland comprised only 64 percent of the total cropped area under irrigation.

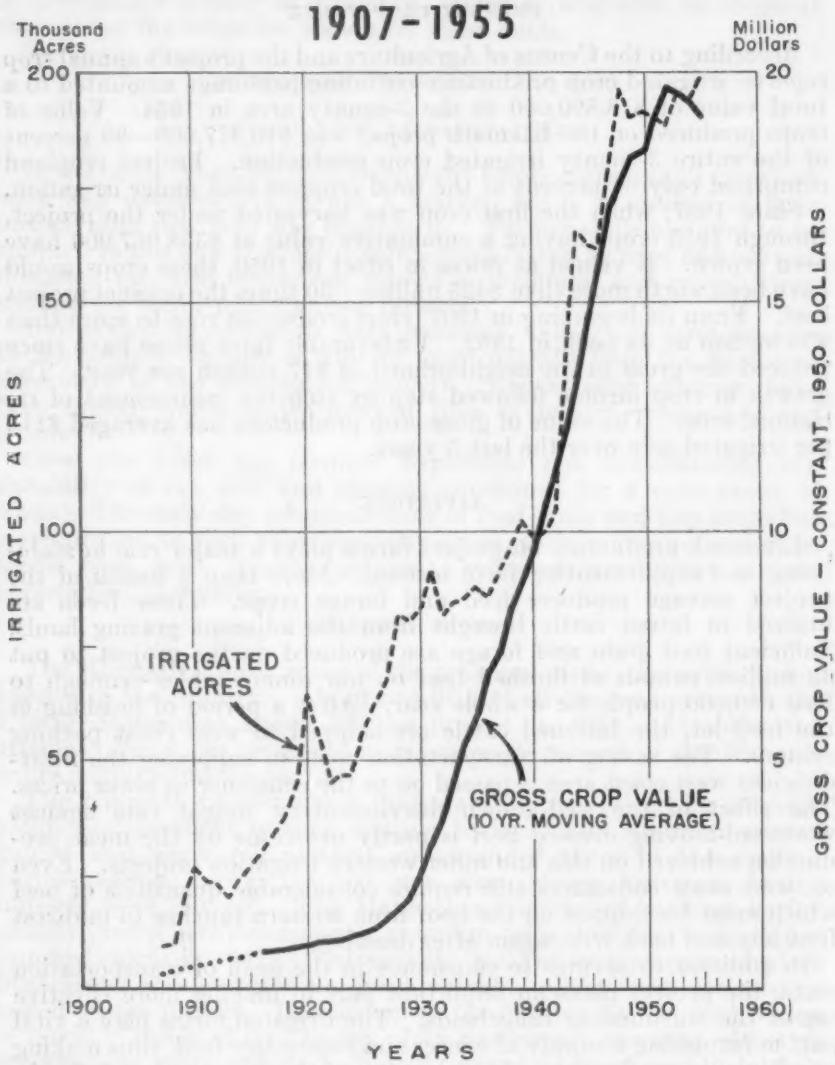
Since 1907, when the first crop was harvested under the project, through 1955 crops having a cumulative value of $338,067,000 have been grown. If valued at prices in effect in 1950, these crops would have been worth more than $425 million—30 times the original project cost. From its beginning in 1907, crop production rose to more than $30 million at its peak in 1952. Unfavorable farm prices have since reduced the gross to the neighborhood of $17 million per year. The growth in crop income followed step by step the enlargement of reclaimed area. The value of gross-crop production has averaged $116 per irrigated acre over the last 5 years.

LIVESTOCK

Livestock production on project farms plays a major role in stabilizing and supplementing farm income. More than a fourth of the project acreage produces feed and forage crops. These feeds are utilized to fatten cattle brought from the adjacent grazing lands. Sufficient feed grain and forage are produced on the project to put 43 million pounds of finished beef on our dining tables—enough to feed 660,000 people for a whole year. After a period of finishing in the feed lot, the fattened cattle are shipped to west coast packing centers. The saving of transportation costs in supplying the meat-deficient west coast area is passed on to the consumer in lower prices. The effect of the well-known discriminatory freight rate against westward-moving dressed beef is partly overcome by the meat production achieved on this and other western irrigation projects. Even so, west coast consumers still require considerable quantities of beef which must be shipped on the hoof from western ranches to midwest feed lots and back west again after dressing.

In addition to savings to consumers in the form of transportation costs, the project plays an important part in making more effective use of the surrounding rangelands. The irrigated farms play a vital part in furnishing a supply of winter and emergency feed, thus making possible a more effective and efficient use of the range and assisting in preventing overgrazing. Lacking this dependable source of feed, ranchers would have to ship in supplementary feeds or liquidate herds at times when natural feed is in short supply.

PROGRESSIVE DEVELOPMENT OF IRRIGATION KLAMATH PROJECT 1907-1955



SOURCE: U.S.B.R. Annual Crop Census Reports.

Growth of the General Economy

STAGES OF GROWTH

The economy of the Klamath area has experienced three distinct stages of growth. Up to the turn of the century the rate of growth was relatively slow, principally due to remoteness of the area, the sizable physical problems to be resolved, and the general lack of attraction it held for settlers. The second stage, which extended until the early 1930's, represented the period of most rapid development in the lumbering industry, expansion in irrigated acreages and extensions of rail services. It was accompanied by large population growth and business expansion. The third stage covers the recent 20-year period during which irrigation farming was intensified, irrigated acreage was doubled, and business expansion continued.

BASIC INDUSTRIES

In rural areas such as this, agriculture, manufacturing and mining industries are recognized as basic or commodity-producing activities. Other activities such as construction, wholesale and retail trades, service trades, transportation, communications and utilities, and so forth are considered to be nonbasic or non-commodity-producing activities. Economic analyses of communities have consistently shown that expansion in basic industries creates opportunities for expansion in the nonbasic activities, thus enhancing the overall economy of the whole community.

Fifty years after initial irrigation service began on the Klamath project, the entire economy of the 3-county area surrounding the projects rests squarely upon 2 basic, commodity-producing industries—agriculture and the manufacture of wood products (lumbering). Forty-three percent of the economic base is provided by agriculture and manufacturing activities which process food and agricultural products. Fifty percent of the economic base is attributable to the lumbering industry. Together agriculture and lumbering account directly for 93 percent of the basic activities. They are primarily responsible for another 5 percent by virtue of their demand for products manufactured by local industry. Mining and other manufacturing make up the other 2 percent.

Lumber production, which comprised 90 percent of all local manufacturing activity, reached its peak of about 800 million board feet in 1941. Since 1944, the annual production has been approximately 500 million board feet. Improvements in forest management and replanting of cutover or burned areas along with advanced forest technology assuring more complete utilization of trees permit the hope that the basic resources and utilization will be brought into balance soon. The forests of the three counties would then be a permanent sustaining basic industry providing livelihood for many families, and stability for an important sector of the economy. In 1947 there were 58 saw and planing mills operating in the 3 counties. Their lumber production of 778 million board feet was valued at about $60 million.

Manufacturing, other than lumber and wood products, is relatively minor in extent and consists mainly of food processing, printing and publishing, stone and clay processing, and furniture and plastic-pipe manufacturing. In recent years, mining of metallic ores such as gold

KLAMATH AREA EMPLOYMENT

Each job in BASIC industries provides one and one-half jobs in NON-BASIC industries.

BASIC

AGRICULTURE 5,142

MINING 222

MANUFACTURING 7,443
(90% Lumbering)

Total Employed 12,807

NON-BASIC

CONSTRUCTION 1,832

TRANSPORTATION, UTILITIES & COMMUNICATIONS 3,877

WHOLESALE & RETAIL TRADES 5,735

SERVICE TRADES 5,529

MISCELLANEOUS 1,569

Total Employed 18,542

and silver has declined and the production of nonmetallic minerals, such as pumice, diatomite, sand and gravel, has increased.

The total land area of the 3 counties is 10,480,000 acres. Only about one-third of this is in farms. Crops are harvested from about 400,000 acres each year. There are about 496,000 acres of land under irrigation. Of the irrigated land, about 300,000 acres is utilized for irrigated crops and the balance for grazing. The 200,000-acre Klamath project comprises roughly two-fifths of the total irrigated land and about two-thirds of the irrigated cropland.

GENERATION OF EMPLOYMENT AND INCOME

Agriculture has been the key element in the Klamath area's growth. More than half the 5,453 workers in agriculture and agricultural processing industries are employed on the Klamath project farms and in the processing of its products. Fully 26 percent of the total trade, employment and income of the 3-county area results from the project and the trade it creates. As a basic industry, the agriculture of the project is estimated to directly provide 4,800 employment opportunities in the nonbasic activities: 470 in construction; 1,000 in transportation, communications, and utilities; 1,500 in wholesale and retail trade; 1,420 in the service trades; and 410 in other miscellaneous categories.

CREATION OF NEW BUSINESS OPPORTUNITIES

New opportunities for individuals to create their own business enterprises are eagerly sought throughout the country. The expansion of our natural resource base is one major source of new business opportunities and, as such, assists materially in perpetuating this much desired element in our economic society. Throughout the half century of Federal development on the Klamath project, small scale, independent business enterprises had the opportunity to grow and strengthen along with the march of agricultural progress. As each additional irrigation unit was opened to settlement, businesses in the adjacent towns experienced an almost simultaneous, proportional boost. As irrigators improved their farming methods, intensified their operations, and accumulated greater equity in their farms, stability was added to the suppliers and tradesmen who did business with them.

IRRIGATION FARMING STIMULATES TRADE

From the first warmth of spring the farms take on the atmosphere of intent, hurried activity. The race against time begins as farmers scurry to get their long-season crops planted early so that frost will not cut short their maturity in the fall. Successive cultivation and irrigation must be timely to keep plants growing at maximum rates, to keep weeds down, and to effectively provide a full reservoir of soil moisture. Pest-controlling sprays and dusts must be timed carefully to maximize the kill of insects and plant diseases. Finally, harvest operations are squeezed in the short space between maturity and frost.

This press of time is a factor in the demand for hired farm labor and for farm machinery. Labor and equipment must be momentarily available when needed. Because of the need for considerable hired labor and machinery, farmers' expenditures for wages, equipment, fuel

and service are sufficiently large to constitute a sizable proportion of the basic trade in the surrounding towns.

Farmers have more than $84 million invested in real estate, equipment and livestock. A fifth of this consists of depreciable items of machinery and equipment which have to be replaced and repaired periodically. Spending for replacements and repairs for the modern farm machines which are the farmers' indispensable "tools of the trade," approximates $3 million per year on these project farms. Included in the price the farmer pays for his machines are the costs that cover, for example, the raw iron ore from the Great Lakes or western mining regions, the labor involved in processing the same into steel at Gary or Pittsburgh, the fabrication of the machine at Moline or Milwaukee and the transportation, handling, financing, and marketing services that take place in a dozen or more States in the typical journey of factory to farm.

RECREATION, FISH AND WILDLIFE

Natural surroundings in the basin offer excellent recreational opportunities. The area's rugged mountains, dense pine forests, trout streams and lakes, big game, waterfowl, and upland game attract sportsmen and tourists alike, who spend an estimated $9 million annually within the Klamath area in pursuit of this recreation. Crater Lake National Park, one of the scenic wonders of the West, is an important tourist attraction as evidenced by over 400,000 visitors to the park in 1953. Lesser known but becoming more popular is Lava Beds National Monument, which had over 70,000 visitors in 1953. The Klamath Basin is an important link in the migratory waterfowl routes of the Pacific flyway. The Modoc deer herd is famous throughout the West.

Indicators of Relative Prosperity

POPULATION GROWTH

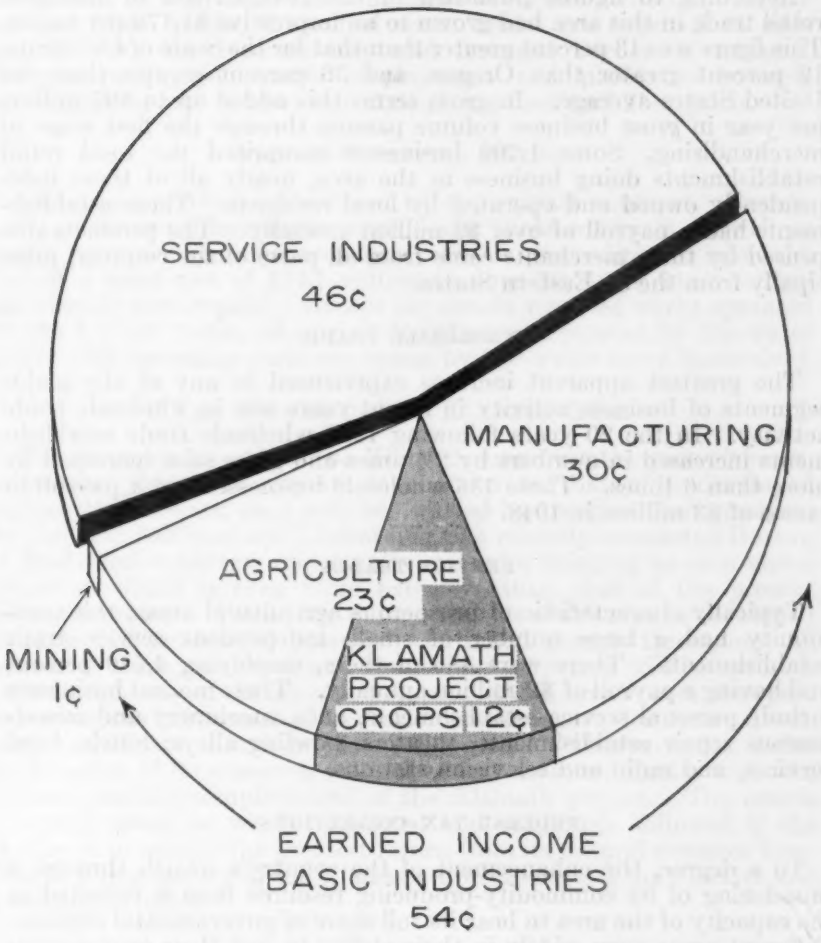
The expanding population of our country has made it necessary for people to constantly seek new frontiers of opportunity. In the 50 years of Klamath project operation, it has provided a continuing supply of jobs and opportunities for business ventures. The population of the basin has more than tripled since 1900. As successive increments of the project were added, new settlers swarmed in to the area. The bulk of the 56,500 people gained in this period came in response to the opportunities that opened up on new project farms and in the adjacent towns supported by expanding agriculture.

PERSONAL INCOME

That these new residents of the Klamath area found that opportunity is apparent in the level of present-day income per capita. Estimates of the economy prepared by the California Chamber of Commerce and the Bureau of Reclamation for 1948 placed the estimated per capita personal income at $1,613. This figure is significantly greater than that of Oregon ($1,451) or the United States ($1,383), and closely rivals that of California ($1,618) which is the highest in the Nation. Of course, nearly all of earned income is spent again and the standard

EARNED INCOME DISTRIBUTION

KLAMATH PROJECT TRADE AREA, 1948



Source: California Counties—California State Chamber of Commerce
Oregon Counties—Estimated by U.S.B.R.

of living is directly reflected in the higher-than-average earnings. The high-level living standard suggests a ready and expandable market for goods produced and brought in from beyond the limits of the local area—more automobiles, more shoes, more radios and TV sets, more steel, more petroleum, and so forth. The project has had its part in providing for this improvement by bringing into abundant fruitfulness 64 percent of the irrigated cropland in the area and by producing nearly 90 percent of the value of crops grown in the 3-county area.

RETAIL TRADE

According to figures published in the 1948 Census of Business, retail trade in this area had grown to an impressive $1,179 per capita. This figure was 13 percent greater than that for the State of California, 12 percent greater than Oregon, and 36 percent greater than the United States average. In gross terms this added up to $97 million per year in gross business volume passing through the first stage of merchandising. Some 1,200 businesses comprised the total retail establishments doing business in the area, nearly all of them independently owned and operated by local residents. These establishments had a payroll of over $9 million annually. The products dispensed by these merchants came from all parts of the country, principally from the 31 Eastern States.

WHOLESALE TRADE

The greatest apparent increase experienced in any of the major segments of business activity in recent years was in wholesale trade activity. In the 20 years following 1929 wholesale trade establishments increased in numbers by 2½ times and gross sales increased by more than 6 times. These 136 wholesale businesses had a payroll in excess of $3 million in 1948.

SERVICE TRADES

Typically characteristic of prosperous agricultural areas, this community had a large number of small, independent service trade establishments. There were 486 of these, employing 4,530 persons and having a payroll of $2 million annually. These modest businesses include personal service establishments, auto, machinery and miscellaneous repair establishments, theaters, bowling alleys, hotels, legal services, and radio and television stations.

FEDERAL TAX COLLECTIONS

To a degree, the enhancement of the country's wealth through a broadening of its commodity-producing resource base is reflected in the capacity of the area to bear its full share of governmental expense. Different areas vary widely in their ability to pull their own weight. One indicator of the extent to which this project has contributed to the financing of Federal Government expenditures is represented in an estimate of the share of Federal taxes collected in the local area which is attributable to the Klamath project and the businesses that the project directly supports. Reliable estimates attribute $95 million in Federal internal revenue payments to the project since

1940. Of course, these include payments by the individuals and businesses for which the project is considered directly responsible for having placed there as well as payments by project farmers themselves. It does not include the $11,200,000 in construction repayments which have been returned to the Federal Treasury since the project's inception.

From the seed investment in reclamation of the Klamath lands, there has sprung such a productive economic structure that the original cost has been returned to the Federal Treasury more than six times through local collections of Federal taxes.

Once but desert and swamp, the project has thus become a strong component in our many-sided national economic structure. Many more of these stable, diversified communities are required to adequately bear the responsibility and financial burden of national defense, to provide stable employment and profitable business opportunities, and to meet our multiplying food and fiber needs.

PROJECT FINANCIAL STATUS

All project services are covered by appropriate contract. Repayment of project construction costs under these contracts, as well as yearly operation and maintenance costs, is proceeding on schedule. Out of a total cost of $14.7 million to June 30, 1956, $11.2 million has already been repaid. Except for certain reserved works operated by the United States, all project facilities are operated by the water users. All operating costs are borne by the water users themselves.

The Future of the Klamath Area

The economic growth of the Klamath area over the past 50 years, impressive though it appears in contrast to that of undeveloped regions of the West, may well be dwarfed by the growth in prospect for the next half century. According to a recently completed Bureau of Reclamation survey, opportunity exists for bringing an area under irrigation which is even more extensive than that of the present Klamath project. Should the water resources of this area be developed to their full productive potential, continued growth throughout all phases of the agricultural and commercial structure will be assured.

One might say of the economic status of the Klamath area that past achievements in resource conservation and prospects for future development indicate that it is just "half grown." However, the useful exploitation of its resources will not be any more automatic than was the successful accomplishment of the Klamath project. The course of action must be wisely chartered and religiously followed if the Nation is to receive the greatest return from its natural resource base. The inspiring history of the Klamath project suggests the effective and profitable solution.

APPENDIX

TABLE 1.—*Irrigated acreage and gross crop value, Klamath project*

Year	Irrigated acreage	Total gross value	Year	Irrigated acreage	Total gross value
1907	8,900	$147,760	1933	84,893	$2,991,232
1908	9,872	164,600	1934	85,474	4,154,696
1909	21,620	327,220	1935	87,461	3,378,008
1910	27,108	318,160	1936	85,560	5,399,797
1911	23,869	338,212	1937	91,777	3,104,298
1912	23,834	385,065	1938	96,784	4,568,005
1913	18,928	288,189	1939	102,444	4,319,433
1914	24,440	347,344	1940	98,879	4,763,360
1915	27,254	377,488	1941	100,651	7,629,454
1916	29,351	509,865	1942	105,629	9,306,992
1917	33,635	847,200	1943	165,872	15,735,513
1918	36,912	1,014,379	1944	162,878	17,663,845
1919	44,544	1,014,105	1945	161,505	17,753,998
1920	64,400	1,544,500	1946	177,403	19,971,762
1921	57,300	724,650	1947	196,761	24,285,862
1922	45,000	721,500	1948	188,319	17,587,699
1923	47,400	697,780	1949	190,724	18,308,161
1924	47,300	1,010,370	1950	192,204	17,386,810
1925	55,443	1,052,149	1951	189,912	26,110,930
1926	62,250	1,374,670	1952	189,135	30,904,804
1927	67,820	1,694,365	1953	196,485	19,362,612
1928	82,235	1,828,030	1954	195,299	19,466,984
1929	80,570	3,509,950	1955	198,679	16,909,135
1930	83,456	3,039,093			
1931	91,401	2,245,474	Accumulative total		338,067,049
1932	81,165	1,481,560			

TABLE 2.—*Agricultural characteristics, Klamath area*

Item	Modoc County, Calif.	Siskiyou County, Calif.	Klamath County, Oreg.	Total, 3 counties
All farms:				
Total land area (acres)	2,620,160	4,040,320	3,822,720	10,483,200
Land in farms (acres)	673,897	961,344	1,572,324	3,207,565
Percent (total land area)	25.7	23.8	41.1	30.6
Number farms	749	970	1,297	3,016
Cropland harvested (acres)	137,964	108,203	196,524	442,691
Irrigated farms:				
Irrigated area (acres)	124,772	93,552	277,322	495,646
Number farms	569	698	1,026	2,293
Irrigated cropland (acres)	89,038	55,275	152,951	297,264
Irrigated pasture (acres)	35,734	38,277	124,371	198,382

Source: United States Census of Agriculture, 1954.

TABLE 3.—*Percent of land in major crops, Klamath project*

Year	Barley	Alfalfa	Potatoes	Alsike clover	Year	Barley	Alfalfa	Potatoes	Alsike clover
1919	8	31	1	0	1951	43	13	5	7
1929	1	8	3	0	1952	37	13	10	6
1939	16	10	10	2	1953	37	13	11	6
1949	43	8	10	5	1954	37	13	10	3
1950	45	10	10	4	1955	36	14	9	3

TABLE 4.—*Population growth, Klamath area*

Year	Modoc County, Calif.	Siskiyou County, Calif.	Klamath County, Oreg.	Total, 3 counties
1900	5,076	16,962	3,970	26,008
1910	6,191	18,801	8,554	33,546
1920	5,425	18,545	11,413	35,383
1930	8,038	25,480	32,407	65,925
1940	8,713	28,598	40,497	77,808
1950	9,643	30,517	42,150	82,310

Source: U. S. Census of Population.

TABLE 5.—*Per capita retail sales, Klamath area, Oregon-California and the United States, 1948*

Kind of business	Modoc County, Calif.	Siskiyou County, Calif.	Klamath County, Oreg.	Total, 3 counties
Food stores	$246	$250	$276	$263
Eating and drinking places	98	95	106	101
General-merchandise stores	50	118	156	130
Apparel stores	38	35	75	56
Furniture, furnishings, and appliances	39	37	58	48
Automotive stores	318	148	287	238
Gasoline service stations	67	67	77	72
Lumber, building materials, and hardware	196	159	115	141
Drug and proprietory stores	24	31	37	33
All other retail stores	63	69	126	97
Total retail sales	1,139	1,009	1,313	1,179

Kind of business	State of—		United States
	Oregon	California	
Food stores	$238	$249	$206
Eating places	52	64	43
Drinking places	24	30	28
General-merchandise group	152	124	114
Apparel stores	47	73	65
Furniture and home-furnishing stores	33	23	20
Household appliance, radio stores	18	45	17
Automotive group	186	163	133
Gasoline service stations	59	56	43
Lumber and building materials	54	57	42
Hardware farm equipment	45	28	32
Drug and proprietory stores	26	34	27
Feed, farm, and garden supply stores	32	22	21
All other retail stores	84	72	67
Total retail sales	1,050	1,040	867

Source: 1948 Census of Business and 1950 Census of Population.

TABLE 6.—*Summary of earned income and employment, Klamath area*

Major industry groups	Employment (1950)		Income (1948)	
	Persons	Percent	Dollars	Percent
Commodity production (basic industries):				
Agriculture [1]	5,142	16.4	$26,653,000	23.0
Mining	222	.7	1,000,000	.9
Manufacturing	7,443	23.7	34,863,000	30.0
Subtotal	12,807	40.8	62,516,000	53.9
Noncommodity production (service industries):				
Construction	1,832	5.8	3,950,000	3.4
Transportation, communications and utilities	3,877	12.4	11,665,000	10.0
Wholesale and retail trades	5,735	18.3	19,958,000	17.2
Service trades	5,529	17.7	12,227,000	10.5
Miscellaneous	1,569	5.0	5,774,000	5.0
Subtotal	18,542	59.2	53,574,000	46.1
Total	31,349	100.0	116,090,000	100.0

[1] Includes a small number employed in forestry and fisheries.

Source: U. S. Census of Business, California State Chamber of Commerce, and Bureau of Reclamation.

○